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(54) Title of the Invention: Peelable Paint

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Specification

1. Title of the Invention

Peelable Paint

2. Claims

(1) Peelable paint, wherein the paint is applied to the surface of the decorative frame of a ventilation fan and the internal components such as the blades to form a peelable paint layer, and wherein the paint contains an alkaline substance and a colorant.

3. Detailed Description of the Invention

(Industrial Field of Application)

The present invention relates to a peelable paint applied to the surface of the decorative frame of a ventilation fan and the internal components such as the blades to form a peelable paint layer that can be peeled off when it becomes contaminated with grease and grime.

(Prior Art and Problem Solved by the Invention)

The structural, electrical and mechanical components of ventilation fans installed in kitchens such as the blades driven by an electric motor are usually in operation during cooking and become contaminated by grease and grime from the smoke. As a result, the cleaning of ventilation fans is a major undertaking. In recent years, the components of ventilation fans have been painted with peelable paint. This peelable paint covers the surface of the components. When the surface of the components becomes coated in grease and grime, the peelable paint is simply removed. This greatly simplifies the cleaning process.

However, the decorative frame of the ventilation fan is often an off-white color such as ivory and the peelable paint is often white or transparent. This makes it difficult to distinguish the painted portions from the unpainted portions during the application process. As a result, some components may remain unpainted. If a colorant is added to the paint as an aid to the application process, the painted portions remain slightly discolored after the paint has dried which mars the external appearance of the components.

(Purpose of the Invention)

The purpose of the present invention is to provide a peelable paint that is able to improve the application process by making it easier to distinguish the painted portions from the unpainted portions during the application process but keeping the external appearance of the components unchanged after the application process has been completed and the paint has dried.

(Constitution of the Invention)

Because the peelable paint of the present invention contains an alkaline substance and a colorant, the presence of the alkaline substance makes the colorant visible during the application of the peelable paint so the painted portions can be clearly distinguished from the unpainted portions. This makes the application process easier. When the paint has dried and the water component has evaporated, the color of the colorant disappears and the original color of the components reappear.

(Working Examples of the Invention)

The following is an explanation with reference to the drawings of a working example of the present invention in which the peelable paint is applied to a ventilation fan installed in a kitchen. Here, 1 is the main body frame with a shutter 2 attached. A motor 3 is fixed inside, and the blades 4 for providing ventilation are mounted detachably to a shaft rotated by the motor 3 using a spanner nut 5. Also, 6 is a decorative frame with a bell-mouth 7 formed in the center and detachably mounted inside the chamber formed by the main body frame 1. In this example, the decorative frame 6 and spanner nut 5 are an off-white color such as ivory, the blades 4 are blue and the shutter 2 is gray. As shown in the enlarged cross-section of FIG 2, the peelable paint has been applied to the surface of these components using a method such as spray painting to form a peelable paint layer 8. When the components of the ventilation fan have become covered in grease and grime from use, the peelable paint layer 8 can be peeled off and another peelable paint layer applied.

Because the peelable paint is an acrylic resin dispersed in water, the alkaline substance in the working example is ammonia and the colorant is phenol phthalein. As is well known, phenol phthalein is alkaline with a pH between 8 and 10 in an electrolyte containing hydrogen ions and hydroxyl ions, and becomes red. It is colorless in a pH neutral or acidic electrolyte and in non-electrolytic solutions. Therefore, a peelable paint containing ammonia and phenol phthalein is alkaline because of the ammonia and becomes red.

The following is an explanation of the operation of this configuration. The peelable paint, as explained above, manifests a red color. Therefore, when applied to the decorative frame 6 and spanner nut 5, the painted portions become red and the unpainted portions remain off-white, which is the original color of these components. When applied to the blades 4 and shutter 6, the painted portions become red and the unpainted portions remain blue or gray, which are the original colors of these components. In both cases, the painted portions can be readily distinguished from the unpainted portions. When there are no longer any non-red unpainted portions, the peelable paint has been applied to all of the components. If some non-red unpainted portions remain, the user can easily identify the unpainted portions and apply a coat of paint. The user can also tell where the coat of applied peelable paint is too thin based on the mixed color of the components. In both cases, the user can prevent a situation in which not enough peelable paint is present on all of the components when they are cleaned.

Once the peelable paint has been applied, the water and ammonia gradually evaporate in the paint layer. The evaporation of the ammonia increases the relative concentration of hydrogen ions in the paint layer and lowers the pH, while the evaporation of the water forms a dry peelable paint layer 8 and significantly reduces the amount of ionized hydrogen ions and hydroxyl ions present. The color of the phenol phthalein is extinguished, and the peelable paint layer 8 becomes transparent. The original colors of the decorative frame 6, blades 4, spanner nut 5 and shutter 2 re-emerge, and the external appearance of the ventilation fan is unaffected by the peelable paint layer.

The use of volatile ammonia as the alkaline substance in this working example caused the color of the phenol phthalein to quickly disappear. However, the alkaline substance in the present invention is not restricted to ammonia. A non-volatile alkaline substance can also be used such as sodium hydroxide. While the sodium hydroxide remains present in the paint layer 8, the amount of ionized hydrogen ions and hydroxyl ions is reduced by the evaporation of the water in the paint layer 8. This causes the color of the phenol phthalein to disappear when the paint layer 8 dries. Moreover, the colorant used in the present invention is not restricted to phenol phthalein. Any colorant that manifests color in the presence of an alkaline substance can be used such as thymol phthalein and cresol phthalein. Furthermore, the application of the present invention is not restricted to kitchen ventilation fans. Other applications are possible within the scope of the claims.

(Effect of the Invention)

Because the peelable paint of the present invention contains an alkaline substance and a colorant, the presence of the alkaline substance makes the colorant visible during the application of the peelable paint so the painted portions can be clearly distinguished from the unpainted portions. This makes the application process easier. When the paint has dried and the water has evaporated, the color of the colorant disappears and the original colors of the components reappear.

4. Brief Explanation of the Drawings

The drawings show a working example of the present invention. FIG 1 is a vertical cross-sectional view of a ventilation fan, and FIG 2 is an enlarged cross-sectional view of a portion of the fan on which the peelable paint layer has been formed.

In the drawings, 1 is the main body frame, 4 is a blade, 6 is the decorative frame, and 8 is the peelable paint layer.

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FIG 1

FIG 2